BIRDS OF KAUAI ISLAND, HAWAIIAN ARCHIPELAGO, COLLECTED BY MR. VALDEMAR KNUDSEN, WITH DESCRIPTIONS OF NEW SPECIES.

By LEONHARD STEJNEGER.

The National Museum is indebted to Mr. Valdemar Knudsen for several interesting collections of birds from the island of Kauai, Hawaiian Archipelago, gathered by himself, and forwarded from time to time. Some of the novelties in the earlier collections have already been published by Mr. Robert Ridgway, partly in these "Proceedings," partly in the great work on the "Water Birds of North America," but the present writer has deemed it best to include these also in the present paper, since few of them have been mentioned in any memoir exclusively devoted to Hawaiian ornithology. By so doing it will also at once become apparent how greatly Mr. Knudsen has advanced our knowledge of one of the most interesting ornithological regions in the world.

The island of Kauai, or Atooi, as the early travelers erroneously called it, was not only the first one discovered, but also the first one on which ornithological specimens and observations were collected. It may not be without interest here to quote what Captain Cook wrote in regard to the birds the first discoverers met with on this island (Cook's Voy. Pacif. Ocean, II, pp. 207 and 227, 1784):

[Page 207.] "We were at a loss to guess from whence they could get such a quantity of these beautiful feathers, but were soon informed as to one sort, for they afterward brought great numbers of skins of small red birds for sale, which were often tied up in a bunch of twenty or more, or had a small wooden skewer run through their nostrils. At the first those that were brought consisted only of the skin from behind the wings forward, but we afterwards got many with the hind part, including the tail and feet. * * * The red bird of our island [Atooi] was judged by Mr. Anderson to be a species of *Merops*, about the size of a sparrow, of a beautiful scarlet colour, with a black tail and wings and an arched bill twice the length of the head, which, with the feet, was also of a reddish colour." * * *

[Page 227.] "The scarlet birds, already described, which were brought for sale, were never met with alive; but we saw a single small one, about the size of a canary bird, of a deep crimson colour; a large owl; two large brown hawks or kites; and a wild duck. The natives mentioned the names of several other birds, amongst which we knew the *otoo*, or bluish heron, and [p. 228] the *torata*, a sort of whimbrel, which are known by the same name at Otaheite, and it is probable that there are a great many sorts, judging by the quantity of fine yellow, green, and very small, velvet-like, black feathers used upon the cloaks and other ornaments worn by the inhabitants."

I am not aware that bird collections of any consequence have been made in Kauai since then. The naturalists of the United States Exploring Expedition (Wilkes's) visited the island, it is true, but as most of their birds are labeled "Sandwich Islands," and none as being from Kauai specially, this fact is of very little importance. Most of the expeditions which at various times visited the archipelago landed and collected in Oahu and Hawaii, and information concerning the ornithology of the northern islands is therefore particularly acceptable.

Kauai, the northernmost of the Hawaiian Islands and the fourth in size, is separated from Oahu by a channel 70 miles wide. It is, therefore, more isolated than either of the larger southern islands, none of which is distant from another more than 30 miles. It is very mountainous, but the vegetation is luxuriant; forests cover the mountain slopes, sugar plantations fill the charming valleys, and at least one-half of its area of 520 square miles is adapted to grazing and agriculture; the climate is said to be very agreeable, and altogether the island deserves its name, the "Garden of Hawaii." A rich avifauna is therefore to be expected, and the discovery of several novelties in the mountainous interior of this island is not at all surprising. The town of Waimea, where Cook first anchored in 1778, is situated near the southwestern corner of the island, and from this neighborhood are most of the birds described in this paper.

In describing the coloration of the birds I have adhered to Mr. R. Ridgway's excellent "Nomenclature of Colors,"* and would advise other writers to use the same as a standard, that we may have some means of identifying colors. When every author uses his own system of designating colors, descriptions become nearly useless.

In order to secure stability in the zoological nomenclature I also observe strictly the rules contained in the "Code of Nomenclature adopted by the American Ornithologists' Union."†

The measurements, which are given in millimeters, have all been taken with sharply-pointed dividers, the arms of which were about 150^{mm} long. The "tail-feathers" are measured by thrusting one arm of the dividers between the two middle tail-feathers to their insertion, measuring from that point to the tip of the longest rectrix.

For some species a full synonymy has been given, but in most cases only such authors are quoted as have treated of the birds of the Hawaiian Islands directly and particularly. Whenever it has been impossible for the present writer personally to verify a quotation, the number of the page has been given in parentheses, and he disclaims any responsibility for figures thus designated.

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*A | Nomenclature of Colors | for Naturalists | and | Compendium of Useful Knowledge | for Ornithologists. | By | Robert Ridgway, | etc. Boston: Little, Brown, and Company, 1886.—129 pp., 17 plates.

†The Code of Nomenclature | and | Check-List | of | North American Birds | Adopted by the American Ornithologists' Union, | etc. New York, 1886.

Æstrelata sandwichensis Ridgw.

? Uau.

1869.—? *Procellaria alba* Dole, Proc. Boston Soc. N. H., XII, 1869, p. 308, Extr. p. 15 (*nec* Gmel. ?).—*Id.*, Hawaiian Almanac, 1879, p. 55.

1884.—*Œstrelata sandwichensis* Ridgway, Water B. N. Am., II, p. 395.—*Æstrelata s.* *Id.*, Proc. U. S. Nat. Mus., IX, 1886, p. 95.

In the great work on the Water Birds of North America Mr. R. Ridgway writes as follows (II, pp. 394–395):

"A specimen from the Sandwich Islands (No. 61259, V. Knudsen, coll.), labeled '*Puffinus meridionalis*,' differs from the above diagnosis [of *Æ. hæsitata*] in several particulars, and may possibly be distinct. The entire upper parts, except forehead, are continuously uniform dusky, nearly black on the head, the nape, the back and scapulars more grayish brown; this dark color even covers uniformly the entire side of the head and neck, except that portion of the former before the eye, and thence downward and backward across the malar region. The feathers of the nape and side of the neck, however, are white immediately beneath the surface, this color showing conspicuously wherever the feathers may be disturbed. There is likewise no exposed white on the upper tail-coverts or base of the tail; the former are, however, very abruptly white beneath the surface, but the latter is white only at the extreme base, and the outer rectrices have a considerable amount of white on their inner webs. The lower parts are almost entirely white, there being merely a few plumbeous irregular bars on the flanks. The measurements are as follows: Wing, 11.80 inches (less than the average of *Œ. hæsitata* as given by Dr. Coues); tail, 5.75; its graduation, 2.40; culmen, 1.22; depth of bill at base, .99; tarsus, 1.40; middle toe (without claw), 1.55. In view of the differences of coloration, much more graduated tail, and smaller dimensions—and especially in view of its different habitat, no specimens of *Œ. hæsitata* having to our knowledge been reported from any part of the Pacific Ocean—the specimen in question may be really distinct. Should such prove to be the case, the name *Œ. sandwichensis* is proposed as a suitable designation." And in a footnote he adds: "In pattern of coloration this specimen agrees exactly with an example of *Œ. cooki*, but has the back, scapulars, rump, and tail decidedly less ashy."

After having had an opportunity to compare Knudsen's bird with examples of true *Æ. hæsitata*, and also with the type of Lawrence's *Æ. meridionalis*, the same author afterwards (Pr. U. S. Nat. Mus., IX, 1886, p. 96) pronounces the opinion that they are entirely distinct from *Æ. sandwichensis*, but has "a suspicion that the latter is the same as *Æ. phæopygia* Salv. (Trans. Zool. Soc. Lond., Vol. IX, part ix, May, 1876, p. 507, pl. 88, fig. 1), from the Galapagos."

This point, however, can only be determined by direct comparison of the types, and until then we prefer to retain the name which belongs strictly to the Hawaiian specimens.

Latham's "White-breasted Petrel" (Gen. Syn., III, ii, p. 400) "from Turtle and Christmas Islands," upon which Gmelin based his *Procellaria* *alba*, scarcely belongs here, as from the description of the former it seems to have the whole head and neck blackish with a white patch on the throat ("the head, neck, and upper parts of the body dusky brown, nearly black; on the throat a whitish patch; breast, belly, and vent, white"). I do not know Mr. Dole's reasons for including *P. alba* in the list unless it be Bloxham's very uncertain statement (Voy. Blonde, p. 252), and I think it most probable that *Æ. sandwichensis* is the bird he intended by that name.

Oceanodroma cryptoleucura (RIDGW.).

1882.—*Cymochorea cryptoleucura* RIDGWAY, Proc. U. S. Nat. Mus., IV, p. 337.—*Id.*, Water B. N. Am., II, p. 406 (1884).

Mr. R. Ridgway, in 1882, described this species as new from two specimens, collected by Mr. Knudsen (Nos. 41949 and 41950). It is easily distinguished from all its allies by having the upper tail-coverts white, the larger ones broadly tipped with black, and by having the concealed bases of the tail-feathers, except middle pair, white.

This is probably the unnamed "*Thalassidroma*" to which Mr. Dole refers (Pr. Boston Soc. N. H., XII, 1869, p. 308, Extr., p. 15), and Hawaiian Almanac, 1879, p. 55.

Gallinula galeata sandvicensis (STREETS).

Hawaiian Gallinule. Alai ula.

1826.—*Fulica chloropus* BLOXHAM, Voy. Blonde, p. 250 (*nec* LINN.).—*Gallinula chloropus* PEALE, U. S. Expl. Exp., Orn., 1 ed. (p. 220) (1848).—HARTLAUB, Wiegm. Arch. Naturg., 1852, p. 137.—DOLE, Proc. Boston Soc. N. H., XII, 1869, p. 302, Extr., p. 9.

1859.—*Gallinula* ——— ? GRAY, Cat. B. Trop. Isl. Pacif., p. 53.

1870.—*Gallinula galeata* GRAY, Handl. B., III, p. 66 (part).

1877.—*Gallinula sandvicensis* STREETS, Ibis, 1877, p. 25.—*Id.*, U. S. Nat. Mus. Bulletin 7, p. 19 (1877).—FINSCH, Ibis, 1880, p. 78.

1881.—*Gallinula sandvichensis* WALLACE, Isl. Life, p. 296.

Mr. Knudsen sends two specimens of this representative form of the American *G. galeata* LICHT., which, compared with Streets's type and typical specimens of *G. galeata*, show that the differences between the alleged two species are much smaller than supposed by the original describer of *G. sandvicensis*.

Dr. Streets (*ll. cc.*) sums up the distinctive characters as follows: "[1] The greater extent of the frontal plate, [2] the shorter wing, [3] the absence of white on the abdomen and [4] on the under surface of the wing, as well as its reduction to a mere trace on the margin of the latter, [5] the more robust and different form of the tarsus, being broader and more rounded in front, [6] as well as the great difference in the color of the tarsus, are characters which separate it immediately from *G. galeata*, and render its identification easy."

(1) There are numerous American specimens in the collection before me which have just as large frontal shields as the Hawaiian birds, and some have it even larger.

(2) It will be seen from the table of measurements given below that there is no difference whatsoever in regard to dimensions or proportions, No. 84683, from Florida, being, in fact, nearly identical with the type of *G. sandvicensis* in these respects. I should remark that the American specimens were picked up at random for measuring, except the last one, a young male, which was selected as being the largest of the whole series before me, and the only one with the wing longer than the second Hawaiian specimen.

(3) The absence or presence of white on the abdomen is simply due to season, the type of *G. sandvicensis* being without white markings, while both the birds collected by Mr. Knudsen have them. Both styles are well matched by American birds.

(4) Also in regard to the scarcity of white on the lining of the wing the Hawaiian specimens are completely matched.

(5) The tarsus is of the same length in both forms, as shown by the table below. As to robustness and different form, I can only state that I am unable to discover any tangible difference.

(6) There remains only the difference in the color of the tarsus, which is said to be, in the Hawaiian bird, of "a decided crimson blush on the front," while in the American form the tarsus is uniformly "yellowish green." I am, however, somewhat doubtful as to the stability and value of this character, for in No. 110026 there is every indication of the tarsus having been green like the toes, and not red like the lower end of the tibia.

A very careful comparison with numerous American specimens fail to reveal any other differences, except, possibly, a somewhat deeper shade of plumbeous on the lower parts.

It seems, therefore, that there are no characters upon which to base a specific separation, and were it not that the difference in regard to the color of the tarsus may hold good in the majority of specimens, I should be disinclined to regard the Hawaiian bird as even subspecifically distinct.

The Gallinule is probably a comparatively recent immigrant to the islands from the American continent, as shown by the very small amount of differentiation, for the close resemblance to the original stock can hardly be accounted for by any other supposition.

Bloxham, in 1826, mentions "*Fulica chloropus*" as a Hawaiian bird, but he apparently obtained no specimen. Peale, during the United States Exploring Expedition, obtained a specimen from Oahu, but lost it, and Street's specimen was from the same island. Dr. Finsch (*l. c.*), during the summer of 1879, observed the Gallinule in the lagoons near Waike and Kahalui, Maui, and near Waimanalo (Oahu). Knudsen's specimens show that it also occurs on Kauai. This completes, so far as I know, the published record of this bird on the islands.

Mr. Knudsen writes that this species is called by the natives "*Alai ula*," Red Alai, as distinguished from "*Alai keokeo*," the coot with the white frontal shield (*Fulica alai*). He says that the latter also occurs in Kauai.

Comparative table of measurements.

a. GALLINULA SANDVICENSIS.

U. S. Nat. Mus. No.	Collector.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers	Culmen, including frontal shield.	Bill from loral apex.	Tarsus.	Middle toe, with claw.
110025	Knudsen	ad	Kauai, Hawaiian Islands		174	68	46	26	56	72
110026	do	ad	do		178	65	44	29	59	70
67361*	Streets	ad	Honolulu, Oahu		168	63	45	27	55	75

* Type.

b. GALLINULA GALEATA.

U. S. Nat. Mus. No.	Collector.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers	Culmen, including frontal shield.	Bill from loral apex.	Tarsus.	Middle toe, with claw.
80912	Ober	♂ ad.	Montserrat, W. I.		169	63	48	27	58	78
84683	Maynard	♀ ad.	Florida	Jan. 3, 1872	174	70	43	26	55	79
60317	Latimer	ad.	Porto Rico, W. I.		165	63	44	27	53	71
84684	Nelson	♂ jun.	Illinois	Aug. 25, 1874	195	83	40	28	56	81

Charadrius dominicus fulvus (GMEL.).

Pacific Golden Plover. Kolea.

1784.—*Charadrius pluvialis* PENNANT, Cook's Voy. Pacif., III, p. 357 (*nec.* LINN.).—PEALE, U. S. Expl. Exp. (p. 239) (1848).

1788.—*Charadrius fulvus* GMELIN, S. N., I, p. 687.—CASSIN, U. S. Expl. Exp., Mam. Orn., p. 326 (1858).—GRAY, Cat. B. Trop. Isls. Pacif., p. 47 (1859).—DOLE, Proc. Boston Soc. N. H., XII, 1869, p. 304, Extr. p. 11.—*Id.*, Hawaiian Almanac, 1879, p. 50.—STREETS, U. S. Nat. Mus. Bull. No. 7, p. 16 (1877).

1827.—? *Charadrius xanthocheilus* WAGLER, Syst. Av., p. 100, n. 36.—CASSIN, U. S. Expl. Exp., Mam. Orn., p. 325 (1858).

1831.—*Charadrius taïtensis* LESSON, Man. d'Orn., II, p. 321.

1880.—*Charadrius dominicus fulvus* RIDGWAY, Proc. U. S. Nat. Mus., 1880, p. 198.—NELSON, Cruise Corwin 1881, p. 84 (1883).

[For further synonyms see my Res. Orn. Explor. Kamtsch., p. 104 (1885)].

The Golden Plover wintering on the Hawaiian Islands is the Asiatic and Polynesian *Ch. fulvus* as distinguished from the more easterly American *Ch. dominicanus* proper. The shorter wings and golden yellow of the upper surface easily distinguish the former from the latter form, and the specimens sent by Mr. Knudsen as well as those in the Museum agree in these respects with Asiatic and Alaskan specimens.

Measurements.

U. S. Nat. Mus. No.	Collector and number.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exp. Culmen.	Tarsus.	Middle toe, with claw.
110032	Knudsen		Kauai, Hawaiian Islands		167	62	25	47	31
110033	do		do		171	62	26	45	31
67338	Streets, 2		Honolulu, Hawaiian Islands.		164	58	....	47	31
15314	Peale		do		172	63	24	....	....

Himantopus knudseni, sp. n.

Knudsen's Stilt. Aeo.

Diagnosis.—Similar to *Himantopus mexicanus* (MÜLL.), from North America, but with the black of the head extending further down on the forehead and occupying the proximal half of the lores; black on neck extending to the sides and the front of the neck, except the middle line, mottled with black, the feathers being narrowly tipped with black; tail-feathers broadly and abruptly tipped with greenish black, nearly the entire outer web of the outer pair being of the same color; tail-feathers, with the outer webs, light smoky gray, and the inner ones white, except the middle pair which has both webs light smoky gray; bill, tarsus, and tail considerably longer than in *H. mexicanus.*

Dimensions of type specimen.—Wing, 232^{mm}; tail-feathers, 87^{mm}; exposed culmen, 75^{mm}; tarsus, 121^{mm}; middle toe, with claw, 47^{mm}.

Habitat.—Hawaiian Islands.

Type.—U. S. Nat. Mus., No. 110024; Kauai, Hawaiian Islands. Valdemar Knudsen, coll.

SYNONYMY.

1873.—*Himantopus nigricollis?* PELZELN, Verh. Zool.-Bot. Ges. Wien, 1873, p. —, Extr. p. 7 (*nec* VIEILL.).

1879.—*Himantopus candidus* DOLE, Hawaiian Almanac, 1879, p. 52 (*nec* BONN.).—FINSCH, Ibis, 1880, p. 79.

This species is most nearly related to the two American species, *H. brasiliensis* and *H. mexicanus*, and differs from the last one in about the same degree as do the species mentioned *inter se*, *H. mexicanus* being in a measure intermediate as far as the relative amount of black and white in the coloration of the plumage is concerned.

H. knudseni, which I take great pleasure of naming in honor of Mr. Valdemar Knudsen who made the interesting collections upon which the present paper is based, needs only comparison with *H. mexicanus*, and the most salient differences have already been pointed out in the diagnosis. I may add that I have before me 17 specimens of the latter species, representing very fairly the individual and seasonal variation, as well as that due to age and sex. The type of *H. knudseni* is evidently an old male.

The accompanying cuts (see Plate VI) explain at a glance the different distribution of black and white in the two species, and make a more detailed comparison superfluous. Suffice it to say, that in the whole series of *H. mexicanus*, I have not found a single individual that even approaches *H. knudseni*, and in none of them, old or young, is the black mottlings on the fore neck even indicated, the border-line between the black of the hind neck and the white of the sides being quite abrupt.

The coloration of the tail is very peculiar, as already described in the diagnosis. Only in a single specimen of *H. mexicanus* (No. 84669, from Florida) is there any approach to the pattern exhibited by the type of *H. knudseni*, but the dusky markings are not so large, nor so dark and well-defined. It may be, therefore, that these marks have no diagnostic value.

In regard to the dimensions, it will be seen from the subjoined table of measurements of adult *H. mexicanus* compared with those of *H. knudseni*, as given above, that in the latter the bill is 4^{mm} longer than maximum of the former, the tarsus 7^{mm} longer, and the tail-feathers 13^{mm} longer, while the wing is slightly shorter than that of the largest *H. mexicanus.* The extraordinary length of the tail in the Hawaiian bird is especially remarkable, it being more than 25 per centum longer than the average of five adult males of the North American species.

The occurrence of a Stilt in the Hawaiian Islands was first recorded by Dr. A. v. Pelzeln (*l. c.*), who named the bird *H. nigricollis*, with a query. The specimen was a female, collected at Honolulu, February 21, 1870, by Mr. H. Kraus, who noted the color of the iris as "red." Dr. O. Finsch (*l. c.*), during his recent visit to the islands, observed the Stilt on Maui, and now we have it, thanks to the liberality of Mr. Knudsen, from Kauai. This gentleman states that the name by which it is known to the natives is "Aeo."

Measurements of Himantopus mexicanus.

U. S. Nat. Mus. No.	Collector.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe, with claw.
84669	Maynard .	♂ad.	Florida..............	....	222	68	66	......	......
30332	Marsh	♂ad.	Jamaica..............	Apr. —, 1863	200	64	66	114	45
59754	Sumichr ..	♂ad.	Tehuantepec, Mexico.	Aug. 4, 1869	227	69	68	114	46
17274	Xantus ...	♂ad.	Sierra de Santiago, Lower California.	Jan. —, 1860	228	74	66	112	......
79839	Henshaw .	♂ad.	Colorado	June 21, ——	234	70	71	113	46
17272	Xantus ...	♀ad.	Sierra de Santiago, Lower California.	Jan. —, 1860	220	74	63	102	42
80998	Ober......	♀ad.	St. Thomas, West Indies.	....	214	70	66	107	43
1154	Baird	♀ad.	Cape May, N. J......	July 21, 1843	215	68	65	107	43

Calidris arenaria (LINN.).

Sanderling. Akekeke.

I can find no published record of this species having previously been taken on the islands. To Mr. Knudsen, therefore, belongs the honor of having added this species to the Hawaiian fauna. It is evidently only a winter migrant.

Mr. Knudsen, on two of the labels, gives the native name as "Akekeke," and on the third one (No. 110031) "Akekeke Kakiowai."

Measurements.

U. S. Nat. Mus. No.	Collector.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.
110029	Knudsen..	Kauai, Hawaiian Islands..	....	125	52	27	27	19
110030	... do	.......do	....	124	49	27	27	20
110031	....do	.......do	....	123	50	27	27	19

Heteractitis incanus (GMEL.).

Wandering Tattler. Ulili.

1788.—*Scolopax incana* GMELIN, S. N., I, p. 658.—*Totanus incanus* GRAY, Cat. B. Trop. Isl. Pacif., p. 50 (1859).—SCLATER, P. Z. S., 1878, p. 351.—*Id.*, Rep. Voy. "Challenger," Zool., II, pt. viii, Birds, p. 99 (1881).—*Actitis incanus* DOLE, Proc. Boston Soc. Nat. Hist., XII, 1869, p. 303, Extr., p. 10.—*Id.*, Hawaiian Almanac, 1879, p. 52.—*A. incana* FINSCH, Ibis, 1880, p. 79.—*Heteroscelus incanus* STREETS, U. S. Nat. Mus. Bull. 7, p. 19 (1877).

1826.—*Scolopax solitaris* BLOXHAM, Voy. "Blonde," App., p. 252.—*Totanus s.* HARTLAUB, Wiegm. Arch. Naturg., 1852, p. 135.

1854.—*Totaous solitarius* HARTLAUB, Journ. f. Orn., 1854, p. 170.

1854.—*Actitis pulverulentus* LICHTENSTEIN, Nomencl. Av. Mus. Zool. Berol., p. 92 (*nec* MÜLL.).

[For additional synonyms see my "Res. Ornith. Explor. Kamtsch.," p. 132 (1885).]

Two specimens confirm the correctness of my supposition (see Res. Orn. Expl. Kamtsch., p. 135) that it is the present species (the one with the long nasal groove) that occurs in the Hawaiian Islands, and not *H. brevipes*.

Measurements.

U. S. Nat. Mus. No.	Collector.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Length of nasal groove.	Tarsus.	Middle toe with claw.
110027	Knudsen.	.....	Kauai, Hawaiian Islands.	....	167	74	40	28	33	31
110028	...do	.....	......do	....	162	71	37	26	34	31

Numenius femoralis PEALE.

Bristle-thighed Curlew.

1848.—*Numenius femoralis* PEALE, Zool. U. S. Expl. Exp., 1 ed. (p. 233).—CASSIN, U. S. Expl. Exp. Mam. Orn., 2 ed., p. 316. pl. xxxvii.

1880.—*Numenius tahitiensis* RIDGWAY, Proc. U. S. Nat. Mus., III, p. 10 (*nec* GMEL. ?).—*Id.*, Water B. N. Am., I, p. 324 (1884).—A. O. U. Check List, p. 159, No. 268.

I do not think that Latham's "Otaheite Curlew" (Gen. Syn., III, i, p. 122), upon which is based Gmelin's *Scolopax tahitiensis*, is the present bird. He states the size to be that of *N. arquatus*, and the bill 4 inches long, dimensions entirely too large for the present species. The rest of his description fits equally well *N. cyanopus*, or better, inasmuch as it entirely omits the diagnostic and striking peculiarities of *N. femoralis*. This latter is easily distinguished from the other species of Curlew by having the shafts of the thigh feathers prolonged into glossy, barbless bristles; by its nearly unspotted, buffy-white upper tail-coverts strongly contrasted against the dark rump, and by the under tail-coverts being unspotted whitish. In addition to these characters *N. femoralis* has the crown of the head dark sooty-brown, with a light mesial line of buff; the primaries have light bars in the inner web, and the under wing-coverts and axillaries are buff with dusky cross-bars.

Mr. Dole (Proc. Boston Soc. N. H., XII, 1869, p. 303, Extr., p. 10) includes *N. australis* GOULD (= *N. cyanopus* VIEILLOT) in the list of

Hawaiian birds. This bird is larger; has no bristly thigh-feathers; upper tail-coverts buffy-gray, barred and streaked with dusky, like the rump; under tail-coverts streaked and barred; axillaries and under wing-coverts white, barred with dusky; and crown streaked with light and dusky, without a mesial stripe.

The bristly thigh-feathers of *N. femoralis* are quite characteristic, and are not due to abrasion, as has been supposed by some authors, for they are certainly present in a quite young bird, collected by Mr. Charles H. Townsend in Alaska, during the summer of 1885.

Mr. Knudsen, at an earlier occasion, presented the Museum with two specimens of this species, an addition to the Hawaiian fauna. In the table of dimensions I have added the measurements of two other specimens, including the type:

Measurements.

U. S. Nat. Mus. No.	Collector.	Sex and age.	Locality.	Date.	Wing.	Tail feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.
41953	Knudsen	ad.	Kauai, Hawaiian Islands	....	240	92	93	56	45
41954	...do	ad.	do	....	......	......	......	......	......
67336	Streets .	ad.	Palmyra Island, Fanning group.	....	240	88	94	62	46
15379*	Peale ...	♀ ad.	Vincennes Island, Pomotu group.	....	248	94	67	......	......

* Type.

? Plegadis guarauna (Linn.).

White faced Glossy Ibis.

1766.- *Scolopax guarauna* Linn., S. N., 12 ed., I, p. 242.—*Plegadis g.* Ridgway, Proc. U. S. Nat. Mus., I, 1878, p. 163.—*Id.*, Water B. N. Am., I, p. 97 (1884).

A young Glossy Ibis, collected in Kauai, was received from Mr. Knudsen in 1872. It is No. 61258. Mr. R. Ridgway, referring to this specimen, says as follows (Water B. N. Am., I, p. 98): "A specimen from the Sandwich Islands; we refer to this species somewhat doubtfully, it being in immature plumage. It agrees strictly with American examples of the same age in all respects wherein *guarauna* differs from *falcinellus*, even to the reddish color of the bill, lores, and feet. Still, it is possible that perfect adults may show differences from both forms."

We are not aware that any other collector has obtained any *Plegadis* in the Hawaiian group.

Nycticorax nycticorax nævius (Bodd.).

Black-crowned Night Heron.

1783.—*Ardea nævia* Boddaert, Tabl. Pl. Enl., p. 56.

1873.—*Nycticorax griseus* Pelzeln, Verh. Zool. Bot. Ges., 1873, p.—, Extr., p. 7.

1884.—*Nycticorax griseus nævius* Ridgway, Water B. N. Am., I, p. 55.

A nearly adult Night Heron and a younger bird, both from Kauai, are in the Museum from Mr. Knudsen (Nos. 41951, 41952). However, until quite adult specimens are obtained the identification must remain somewhat doubtful.

On the other hand, I feel not quite assured that it is possible to distinguish between an American race and an Old World form of this species. The latter is said to be a trifle smaller, but it is hardly consistent to keep them separate as long as the Mallard and Pin-tail Ducks of the two hemispheres are not deemed worthy of separation.

Asio accipitrinus (Pall.).

Short-eared Owl. Pueo.

1771.—*Strix accipitrina* Pallas, Reise Russ. Reich., I, p. 455.—*Asio accipitrinus* Newton, Yarrell's Brit. B., 4th ed., I, p. 163 (1872).—Ridgway, Proc. U. S. Nat. Mus., IV, p. 369 (1882).

1772.—*Strix brachyotus* Forster, Phil. Trans., LXII, 1772, p. 384.—*Otus b.* Peale, U. S. Expl. Exp., 1 ed. (p. 75) (1848).—Lichtenstein, Nomencl. Av. Mus. Berol., p. 6 (1854).—Sclater, Ibis, 1871, p. 358.—*Id.*, P. Z. S., 1878, p. 348.—Pelzeln, Verh. Zool. Bot. Ges., 1873, p. —, Extr., p. 3.—Finsch, Ibis, 1880, p. 78.—Wallace, Island Life, p. 296 (1881).—*Asio b.* Sclater, Rep. Voy. "Challenger," Zool., II, pt. viii, p. 96 (1881).

1826.—*Strix sandwichensis* Bloxham, Voy. "Blonde," App., p. 250.

1852.—*Otus sandvicensis* Hartlaub, Wiegm. Arch., XVIII, pp. 97, 131.—*Id.*, Journ. f. Orn., 1854, p. 170.—*Asio s.* Blyth, Ibis, 1863, p. 27.

1858.—*Brachyotus galapagoensis* Cassin, U. S. Expl. Exp. Mam. Orn., p. 107 (*nec* Gould).—Dole, Proc. Boston Soc. N. H., XII, 1869, p. 296, Extr., p. 3, (scr. *gallapagoensis*).—*Id.*, Hawaiian Almanac, 1879, p. 43.

1875.—[*Asio accipitrinus*] δ *Asio sandwichensis* Sharpe, Cat. B. Brit. Mus., II, p. 238.

The four specimens of Short-eared Owls from the Hawaiian Islands before me do not seem to justify the retention of *Asio sandwichensis* as a separable race.

Two of them (Nos. 110034 and 110035) agree in general coloration with the majority of American specimens; the two others are deeper tawny, and No. 110036 nearly uniform dusky on the back, but it is in very abraded plumage, and is, moreover, easily matched by several other specimens in the large series of the United States National Museum.

The character pointed out by Mr. Sharpe (Cat. B. Brit. Mus., II, p. 239), viz, the "very dusky frontal patch," I find well pronounced in my Hawaiian specimens, but as Mr. Sharpe has found the same in some Asiatic examples and it also apparently occurs in some American specimens which have come under my own observation, I am very doubtful as to the importance of this character. I am bound to remark, however, that I believe the make of the skin and the abrasion of the feathers to have something to do with it, and future observations based on fresh birds or absolutely perfect specimens may be necessary to settle this question, which is of considerable importance in order to ascertain whether the owls on the Hawaiian Islands are in part migratory or not.

That they are not smaller than those from other localities is evident from the measurements which I have given below. Those of the largest individual are about equal to the average of the species, while the length of the wing, if it had grown to its full length, would not have fallen far behind the largest.

Cassin referred the Hawaiian bird to *A. galapagoensis* (GOULD), but with no good reason. The most distinguishing character of the latter is the dusky streaks on the legs, a feature not at all indicated in any of the Hawaiian specimens before us.

Measurements.

U. S. Nat. Mus. No.	Collector.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.
110034	Knudsen	ad.	Kauai, Hawaiian Islands		*304	144
110035	do	ad.	do		(*)	140
110036	do	♀ ad.	do		†290	†140
13890	Peale	ad.	"Sandwich Islands"		300	138

* Wing molting. † Wing and tail feathers very much abraded.

Chasiempis sclateri RIDGWAY.

Sclater's Spotted-winged Flycatcher. Amakahi.

1882.—*Chasiempis sclateri* RIDGWAY, Proc. U. S. Nat. Mus., IV, March 29, 1882, p. 337.

1885.—*Chasiempis sandwichensis* SCLATER, Ibis, 1885, p. 19 (*nec* GMEL.).

There exists a vague notion amongst ornithologists, or rather a theory, that the bird which Gmelin designated as *Muscicapa sandwichsensis* is the male and his *M. maculata* the female of the same species of *Chasiempis*. There seems also to exist a theory that the Hawaiian Islands ought not to have more than one species of *Chasiempis*, these Flycatchers having been denied the privilege of differentiating into separate forms in their respective islands, like the birds of the Antilles or the Galapagos. As a consequence, not only have the above two names been lumped together, but any *Chasiempis* coming from the "Sandwich Islands" must bear the name *Ch. sandwichensis*, whether the original description fits it or not. The theory will have it so. What does it matter that Latham describes his bird as having "a white line over the eye," when in another specimen the "feathers over the eye are chestnut"? Or what does it matter that the collector marks the specimen as a female when the theory is that it ought to be a male? Following this theory I should have saved myself great trouble by simply saying that I have received from Mr. Knudsen four *Ch. sandwichensis*, two males with white rump and two with tawny rump, notwithstanding the fact that they do not fit Latham's (or Gmelin's) description, and in spite of Mr. Knudsen's positive statement that the two white-rumped birds are male and female and the two tawny-rumped specimens likewise male and female, as ascertained by him by dissection. But, on the contrary, I shall have to ask the forgiveness of my colleagues for introducing no less than three new names, and for recognizing five different Hawaiian forms, at least provisionally.

But, before proceeding any further, I may first introduce a synopsis of these five forms in order to make the explanation following more intelligible:

PROVISIONAL KEY TO THE HAWAIIAN SPECIES OF THE GENUS *CHASIEMPIS.*

- a^1. Wing-markings pure white.
  - b^1. A whitish mark above, or in front of, the eye.
    - c^1. "Upper parts of the body brown." .... *Ch. sandwichensis* (Gmel.).
    - c^2. Upper parts of the body deep smoky gray .... *Ch. dolei* Stejn. [sp. n.].
  - b^2. No whitish mark above, or in front of, the eye; "forehead and feathers over the eye chestnut" .... *Ch. ridgwayi* Stejn. [Ibis, 1885, pl. i, fig. 1].
- a^2. Wing-markings tawny, or "ferruginous white."
  - b^1. Sides of head, including ear-coverts, uniform bright tawny, without distinct superciliary stripe .... *Ch. sclateri* Ridgw.
  - b^2. Ear-coverts dusky, lores and a distinct superciliary stripe pale tawny .... *Ch. ibidis* Stejn. [Ibis, 1885, pl. i, fig. 2].

In the first place, I do not think there are any observations on record, which at the present time justify us in regarding the white-rumped specimens as males and the tawny-rumped ones as females. On the contrary, the only published observation that I am aware of is strongly against such a supposition, for the two specimens collected on Hawaii by the naturalists of the "Challenger"—the form which I call *Ch. ridgwayi*—are said to have white rumps and white wing markings, but both are determined as ♀♀ by the collector. It would also seem as if the ♀ of the pair in the Vienna Museum has a white rump (Pelzeln, Ibis, 1874, p. 462). Mr. Knudsen's observations in regard to the four specimens (two white-rumped *Ch. dolei* and two tawny-rumped *Ch. sclateri*), as related in letter to Mr. R. Ridgway, are to the following effect:

> "2 Amakahi [*Ch. sclateri*]—all the birds that follow are male and female— . . .
>
> "2 Apekepeke [*Ch. dolei*], also flycatcher, as the above. They live together and by many are considered as the female of Amakahi.
>
> These are male and female, as I have seen by the ovary, &c."

I will suggest the possibility of the tawny-rumped specimens being the younger birds, but until the question be settled one way or another by competent observers on the spot, I feel not at liberty to substitute one uncertain theory for another, and shall therefore keep the two styles of birds apart provisionally.

This point being decided, there can hardly be any doubt as to the propriety of recognizing three different species with white-wing markings (and probably white rumps). We have first the brown and chestnut colored bird from Hawaii, *Ch. ridgwayi*, figured on plate i, Ibis, 1885. This bird has the sides of the head entirely dark, "the forehead and feathers over the eye chestnut, and feathers below the eye blackish washed with chestnut," and the color of its breast and flanks is "chestnut," consequently it cannot be identified with Latham's "Sandwich Flycatcher," which he describes as having "the forehead buff-colored; over the eye a white line," and "breast rust-color." Then we have the bird collected on Kauai by Mr. Knudsen and by me described below as *Ch. dolei.* This species is smoky gray above, has a white supraloral spot, but no superciliary line; throat, fore-neck, breast, and flanks uniform tawny. Nor can this one be Latham's "Sandwich Flycatcher," for he says that the latter has "the upper parts of the body brown," and "over the eye a white line." The chin he describes as "pale, marked with dusky streaks," while no such streaks occur in *Ch. dolei.* I am, therefore, obliged to regard *Muscicapa sandwichensis* as distinct from both the forms mentioned, and its real habitat may be one of the islands between Hawaii and Kauai.

In regard to the tawny-rumped forms the accessible facts are as follows:

Mr. Ridgway in 1882 described two specimens collected by Mr. Knudsen in Kauai as *Ch. sclateri.* These specimens Dr. Sclater afterwards compared with a specimen (without certain locality) in the British Museum, which Dr. Cabanis had determined as *Ch. sandwichensis* "by comparison with the specimens of both sexes of this species in the Berlin Museum," the specimens in the latter museum having been obtained in Oahu by Mr. Deppe. Dr. Sclater at the same time gives a figure of the British Museum specimen (Ibis, 1885, pl. i, fig. 2), and states that Mr. Ridgway's type specimens "agree completely with the specimen now figured." This specimen is nowhere described (not even in the Cat. B. Brit. Mus., IV), but the figure quoted above shows so great a difference from the four Kauai specimens before me that I feel great doubt in regard to their identity with the British Museum specimen, especially as I am forced to believe that the different islands are inhabited by different forms of the white-rumped kind. However, should, contrary to expectation, the British Museum specimen and those in the U. S. National Museum really prove identical, then I can only say that the published figure of the former is worse than useless.

The chief differences between *Ch. sclateri* and the figure in the "Ibis," which I shall designate as *Chasiempis ibidis*, consist, in the first place, in the much deeper and richer tawny color of the former, and this color extends much further on the breast, flanks, and tibiæ than in *Ch. ibidis.* The latter has the greater wing-coverts tipped with brownish white, while in *Ch. sclateri* these tips are tawny like those of the smaller coverts. *Ch. ibidis* has the ear-coverts dusky, apparently of the same color of the back, thus setting off a well-defined superciliary stripe, entirely wanting in *Ch. sclateri*, in which the whole side of the head, including ear-coverts, is of a uniform bright tawny. In *Ch. ibidis* the bill seems to be horn gray, darker towards the tip; in *Ch. sclateri* it is blackish brown, except the basal half of the lower mandible, which is bright yellow.

Whether these differences hold good in nature, of course I cannot say, but I think it is safer to assume the correctness of the plate. That Dr.

Sclater failed to notice any difference in the specimen may partly be due to the very bad condition of the type specimens which he had for examination.

As to the names of these birds it matters little whether Gmelin's *M. maculata* applies to one or the other, inasmuch as this term was applied by Ph. St. Müller twelve years previous to no less than two different species (Canon xxxiii, A. O. U. Code, p. 47).

Mr. Knudsen writes that the Amakahi is also called "Kahuna ka lai waa," or canoe-builder, by the natives. It catches moths and other flying insects on the wing, and also spreads the tail as a fan.*

Measurements.

U. S. Nat. Mus. No.	Collector.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe, with claw.
41955*	Kundsen.	ad.	Kauai, Hawaiian Islands.	....	67	60	....	24	....
41956*	....do	ad.	....do............	....	66	62	....	25	....
110037	....do	ad.	....do............	....	68	62	11	24	15
110038	....do	ad.	....do............	....	67	63	12	25	15

*Type.

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*The synonymies of the different forms of *Chasiempis* recognized above, but not occurring in Kauai, stand as follows:

Chasiempis sandwichensis (GMEL.).

Sandwich Flycatcher. Elepaio.

1788.—*Muscicapa sandwichensis* GMELIN, S. N., I, p. 945.—*Eopsaltria* (*Chasiempsis*) *s.* GRAY, Cat. B. Trop. Isls. Pacif., p. 21 (1859).—? *Chasiempis s.* PELZELN, Ibis, 1874, p. 462.

1869.—*Eopsaltria sandvicensis* DOLE, Proc. Boston Soc. N. H., XII, 1869, p. 300, Extr., p. 7.—*Id.*, Hawaiian Almanac, 1879, p. 48.

Chasiempis ridgwayi STEJN.

Brown-faced Flycatcher. ??

1878.—*Chasiempis sandvicensis* SCLATER, P. Z. S., 1878, p. 346 (*nec* GMEL.).—*Id.*, Rep. Voy. "Challenger," Zool., II, pt. viii, p. 94 (1881).—SHARPE, Cat. B. Brit. Mus., IV, p. 232 (*part.*) (1879).

1885.—*Chasiempis sandwichensis* SCLATER, Ibis, 1885, p. 18, pl. i, fig. 1 (*nec* GMEL.).

Chasiempis ibidis STEJN.

Spotted-winged Flycatcher.

1788.—? *Muscicapa maculata* GMELIN, S. N., I, p. 945 (*nec* MÜLL., 1776).—DOLE, Proc. Boston Soc. N. H., XII, 1869, p. 299, Extr., p. 6.—*Id.*, Hawaiian Almanac, 1879, p. 48.

1847.—? *Chasiempis sandvicensis* CABANIS, Wiegm. Arch. Naturg., I, 1847, p. 208.—LICHTENSTEIN, Nomencl. Av. Mus. Berol., p. 19 (1854).

1862.—*Cnipolegus*, sp. 1238, SCLATER, Cat. Am. B., p. 203.

1879.—*Chasiempis sandvicensis* SHARPE, Cat. B. Brit. Mus., IV, p. 232 (*part.*).

1885.—*Chasiempis sandwichensis* SCLATER, Ibis, 1885, p. 18, pl. i, fig. 2.

Chasiempis dolei, sp. n.

Dole's Flycatcher. Apekepeke.

Diagnosis.—Above dark smoky gray, rump and upper tail-coverts white, each feather being broadly tipped with that color; forehead washed with pale tawny; lores and space above the lores from base of culmen to eye whitish slightly tinged with tawny; under surface white, strongly tinged with tawny on throat, fore-neck, upper breast, and flanks; secondaries and all upper wing-coverts, except primary coverts, tipped with white; under wing-coverts and axillaries gray at base, white at tip; quills internally edged with white; tail tipped with white as in the other species. Bill and feet tawny black.

Dimensions (average).—Wing, 69$^{\mathrm{mm}}$; tail-feathers, 64$^{\mathrm{mm}}$; exposed culmen, 11$^{\mathrm{mm}}$; tarsus, 24$^{\mathrm{mm}}$; middle toe with claw, 16$^{\mathrm{mm}}$.

Habitat.—Kauai Island, Hawaiian Archipelago.

Type.—U. S. Nat. Mus. No. 110040. V. Knudsen coll.

The two specimens sent, Mr. Knudsen says, are male and female, as ascertained by him by dissection, but it is not indicated which one is the male and which the female. The only difference between the two is that No. 110039 is somewhat larger and has the extreme tip of the chin black, while in the other specimen the white of the chin reaches the angle of the bill.

I have dedicated this species to Mr. Sanford B. Dole, to whom we owe the first elaborate attempt at a synopsis of the Hawaiian Avifauna.

Measurements.

U. S. Nat. Mus. No.	Collector.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.
110040*	Knudsen.	ad ...	Kauai, Hawaiian Islands.	....	67	63	11	23	15
110039	....do....	ad ...	....do..........	....	71	64	11	24	16

* Type.

Phæornis myadestina, sp. n.

Flycatching Thrush. Ou, or Uapauau.

Diagnosis.—Similar to *Ph. obscura*, from Hawaii, but the upper surface more olive, the under surface much lighter, white tips to the outer tail-feathers, and a very distinct myadestine wing-pattern; inner primaries and secondaries at base of outer web bright russet, forming an oblique band across the wing, followed by a similar black one which is caused by the olive-russet edges to the quills suddenly narrowing a little distance from the bright russet "speculum."

Dimensions (average).—Wing, 103$^{\mathrm{mm}}$; tail-feathers, 82$^{\mathrm{mm}}$; exposed culmen, 14$^{\mathrm{mm}}$; length of gonys, 6.5$^{\mathrm{mm}}$; tarsus, 32$^{\mathrm{mm}}$; middle toe with claw, 24$^{\mathrm{mm}}$.

Habitat.—Kauai Island, Hawaiian Archipelago.

Type.—U. S. Nat. Mus. No. 110041. V. Knudsen coll.

SYNONYMY.

1858.—?*Tænioptera obscura* ♀ CASSIN, U. S. Expl. Exp. Mam. Orn., p. 155 (*nec* GMEL.).—DOLE, Proc. Boston Soc. Nat. Hist., xii, 1869, p. 300, Extr., p. 7.—*Id.*, Hawaiian Almanac, 1879, p. 48.

Cassin having one specimen of true *Ph. obscura* and one of the present form, or at least very closely allied to it, evidently guessed at the first one being the male and the latter one the female, and unhesitatingly described them as such. However, we have not only Knudsen's assertion that the two specimens of *Ph. myadestina* from Kauai are male and female, but the naturalists of the Challenger expedition collected both sexes of the typical *Ph. obscura* in Hawaii, of which Mr. Sharpe (Cat. B. Brit. Mus., IV, p. 5) remarks that the female is "similar in color to the male." This apparently disposes of any theory of these birds being different sexes of the same species.

The specimens collected by Mr. Knudsen are quite alike, except that No. 110042 shows unmistakable signs of being in immature plumage, for the great upper wing-coverts, as well as those of median row and the inner secondaries, have a subapical semilunar spot of buffy white terminally bordered by a blackish fringe.

Description (*U. S. Nat. Mus. No.* 110041. *Kauai, Hawaiian Archipelago. V. Knudsen coll.*)—Entire upper surface of a dull hair-brown with an olive tinge; sides of head dull tawny, the feathers fringed with dusky; lower surface of a light smoky gray, somewhat motley in appearance, caused by the dusky fringes to the feathers, lighter on throat and fading into nearly pure white on abdomen and under tail-coverts, while breast and flanks are more olive gray, the latter strongly tinged with the color of the back; tibiæ of a brownish olive gray; general color of the wings above like the back, but the edges of the outer webs of the quills more russet, except the edges of the second to fifth primaries beyond the sinuation, which are of a grayish tinge; the base of the inner primaries and secondaries in the outer webs bright russet, forming an oblique angular band across the wing followed by a similar black one caused by the restriction of the russet edge for a distance of about 7^{mm} from the bright russet base; basal third of inner web of secondaries abruptly creamy white, this color also invading the bases of the inner webs of the primaries, except the two outermost ones, but in such a manner as to become gradually narrower and not reaching the shaft while extending farther up along the edge; great under wing-coverts dark ashy, the smaller ones and the axillaries like the under parts of the body; middle tail-feathers colored like the back, the remainder blackish, broadly edged in the outer web with the color of the back or slightly more russet, except the outer pair which has the entire outer web light isabella-gray; three outer tail-feathers with a white mark at tip, those of the two outer pairs forming a long and narrow wedge-shaped spot in the inner web along the shaft, while on the third pair the white mark is reduced to a small speck in the inner web. Bill horny black; feet dark horny brown.

Wing formula: $1>\frac{1}{2}2$; $2<9>10$; $3=7$; $5>4>6$, these three longest and the difference between them only slight (about 1^{mm}).

For *dimensions* see table below.

The systematic position of these rare birds has been somewhat doubtful and is still so. *Phæornis obscura* was by Cassin referred to the "American Flycatchers," but the shortened first primary shows that it has nothing to do with these Neotropical birds, and those ornithologists who placed it with the "Old World Flycatchers" came nearer the truth. Mr. R. B. Sharpe refers it to the *Prionopidæ*, evidently excluding it from the *Muscicapidæ* on account of the very forward position of the chin-angle, an essential character of his "*Coliomorphæ.*" This feature, however, is by no means peculiar to the latter group, as I have already shown in my paper on the arrangement of the American Turdidæ,[*] in which I separated, as a subfamily, the *Myadestinæ* with the character; "Chin-angle always anterior to the line of the nostrils." And, in fact, nobody can help being struck by the great similarity between *Phæornis myadestina* and, say, *Myadestes obscurus*, a similarity first pointed out to me by friend Ridgway. So great is the resemblance, that I doubt whether Mr. Seebohm could consistently keep them apart generically. Not only is the general color very similar, but the pattern of wing and tail most surprisingly so. Also some of the structural characters bring the two birds rather close together: both have a very short gonys which is less than one-third the commissure, and the chin-angle is much anterior to the large nostrils, and both have "booted" tarsus. The chief differences consist in the greater length and rounded shape of the tail in *Myadestes*, and the longer first primary and longer tarsus of *Phæornis.*

But this is not all that speaks in favor of this bird being related to the *Turdidæ* (and to the *Muscicapidæ*, as I can see no possibility of keeping these two so-called families apart), for the young specimen of *Ph. myadestina* (No. 110042) shows that the young ones have the spotted plumage so characteristic of all *Turdidæ.*

The question in regard to the systematic position of *Phæornis* is one of great interest, for should it really be nearest related to the *Myadestinæ*, then the "non-American" appearance, or rather "Old World" appearance, of the latter would perhaps not be so inexplicable.

Mr. Knudsen writes that the Uapauan, or, better, the Ou, feeds on bugs and sings on the wing like "the lark."

Measurements.

U. S. Nat. Mus. No.	Collector.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Length of gonys.	Tarsus.	Middle toe with claw.
110041[†]	Knudsen.	ad ..	Kanai, Hawaiian Islands.	....	104	83	14	7	32	24
110042	....do	jun .	....do	....	102	81	14	6	32	23

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[*] Proc. U. S. Nat. Mus., V, p. 459.

[†] Type.

Hemignathus obscurus (GMEL.).

Green Sickle-bill. Iwi.

1788.—*Certhia obscura* GMELIN, S. N., I., p. 470.—? *Hemignathus obscurus* LICHTENSTEIN, Abh. K. Akad. Berlin, 1838, p. 449, tab. v, fig. 1 (1839).—CASSIN, U. S. Expl. Exp. Mam. Orn., p. 178 (1858).—DOLE, Proc. Boston Soc. N. H., XII, 1869, p. 298, Extr. p. 5.—*Id.*, Hawaiian Almanac, 1879, p. 45.—SHARPE, Cat. B. Brit. Mus., X, p. 4 (1885).

1859.—*Drepanis* (*Hemignathus*) *ellisiana*, GRAY, Cat. B. Trop. Isls. Pacif., p. 9.

Two birds which Mr. Knudsen designates as male and female I refer with a little doubt to Latham's "Hook-billed Green Creeper," upon which Gmelin based his *Certhia obscura.* The length of the bill alone, as given by Latham (1¾ inches), proves, beyond a shadow of doubt, that Gray was wrong in referring *C. obscura* to *Vestiaria coccinea.* Having only Kauai birds before me, I can, of course, express no opinion in regard to possible representative races on the other islands on which this species likewise occurs. I may remark, however, that Latham describes his bird as "in general olive green, palest beneath, and somewhat inclined to yellow," while Knudsen's birds are decidedly sulphur yellow underneath; on the sides washed with olive. The bird from Oahu, judging from Lichtenstein's descriptions and figure, differs from mine in being much less yellow on the under surface, and in having the abdomen and under tail-coverts isabella color and not olive yellow, but an actual comparison can only decide whether there are two distinct forms or not.

Generally this bird is referred to the same genus as *Hemignathus lucidus*, but with doubtful propriety, as I think.* The bills in this group of birds have served as the chief character for the establishment of genera, and if we recognize more than one genus of Drepanine birds, the two species of *Heterorhynchus* with their unique bills should certainly stand alone. With specimens in hand Mr. Sharpe would never have included *H. obscurus* in a genus which he defines as having the "upper mandible nearly twice the length of the lower one" (Tom. cit., p. 2, Key to Genera), for the species in question has "both mandibles of nearly the same length," the difference being about one-tenth the chord of the exposed culmen, or proportionately the same as in *Vestiaria* and *Himatione.*

Whether the present bird, on the other hand, may not be strictly congeneric with *Drepanis pacifica* I am unable to say positively, but, judging from the descriptions and figures of the bill of the latter, I feel confident that no great violence would be committed in uniting these "Great Hook-billed Creepers" under the term *Drepanis.*

The two specimens sent by Mr. Knudsen are identical as far as color is concerned, but No. 110044 has the bill less curved and shorter than the other specimen, a difference which may perhaps be due to sex.

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*From the wording of the phrase in which Lichtenstein proposes the generic name *Hemignathus*, it is evident that *H. obscurus* is the type and not *H. lucidus*, as generally stated.

Measurements.

U. S. Nat. Mus. No.	Collector.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Chord of exposed culmen.	Distance between tips of mandibles.	Tarsus.	Middle toe with claw.
110043	Knudsen.	ad ..	Kauai, Hawaiian Islands.	....	76	50	53	4	26	25
110044	....do	ad ..	....do	....	82	48	48	4.5	27	24

Himatione parva, sp. n.

Kamao.

Diagnosis.—Tail-feathers much more than three times the length of the exposed culmen, the latter shorter than middle toe with claw; gonys nearly straight; above bright yellowish olive-green, underneath bright olive yellow, except middle of abdomen which is white; under tail-coverts yellow.

Dimensions (average).—Wing, 59^{mm}; tail-feathers, 42^{mm}; exposed culmen, 12^{mm}; tarsus, 19^{mm}; middle toe with claw, 14^{mm}; hind toe without claw, 8^{mm}.

Habitat.—Kauai, Hawaiian Islands.

Type.—U. S. Nat. Mus. No. 110051. V. Knudsen, coll.

In general proportions the present species, which is the smallest of the slender-billed Hawaiian *Dicæidæ*, agrees very well with *Himatione sanguinea*, except in its proportionately somewhat shorter bill, and cannot be separated from it generically, although in shape and size of bill somewhat intermediate between the latter species and *Loxops*. It is of about the same size as *L. coccinea*, consequently much smaller than *H. sanguinea*, and easily separable from both by its coloration, except perhaps from the female *Loxops coccinea*, which, according to v. Pelzeln (Journ. f. Orn., 1872, p. 29), is green above and yellow below. The bare nasal fossæ and longer bill of *H. parva* will prevent its being confounded with *Loxops*, however. In regard to color it approaches more closely *Himatione chloris*, but *H. parva* is brighter yellow both above and below, and has the under tail-coverts yellow, strongly contrasting with the white of the abdomen, while in *H. chloris* they are whitish washed with dull buff. They are very easily told apart by the quite different dimensions and proportions, *H. chloris* being much larger, with a much longer and more curved bill and a proportionately much shorter tail than *H. parva*.

From *H. virens* (GM.) (which I take to be the same as Sharpe's and Sclater's bird of the same name, and also the same as Bloxham's *H. flava*, Mr. Sharpe having the types of the latter in the British Museum) our *H. parva* may be distinguished principally by its smaller size, and especially by its much shorter bill.

H. maculata CABANIS, which is evidently quite distinct from both *H. virens* and *H. chloris*, is at once excluded from comparison with *H. parva* on account of the dimensions, and especially as having an entirely different wing-formula.

Description. Ad. (*U. S. Nat. Mus., No.* 110051; *Kauai, Hawaiian Islands. V. Knudsen coll.*).—Entire upper surface and sides of body as well as the outer edges of quills and tail-feathers bright yellowish olive-green, inclining to olive-yellow on forehead, region above the lores, supercilia, and rump; trace of a dusky line between bill and eye; under surface, including under tail-coverts, bright olive-yellow; middle of abdomen, tibiæ, axillaries, and under wing-coverts white, except those of the latter nearest to the edge of the wing, which are bright yellow; quills blackish, edged in the outer web with yellowish olive, in the inner one with white. Bill horny, brownish gray, pale at base below the nostrils; feet horny, brownish gray.

No. 110052 differs only in having the colors slightly less bright.

Mr. Knudsen writes that this little bird, the native name of which is *Kamao*, feeds on bugs, but also on the juice of flowers. The specimens sent were male and female. They are evidently adult birds, without any trace of immature plumage.

Measurements.

U. S. Nat. Mus. No.	Collector.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Chord of exposed culmen.	Tarsus.	Middle toe with claw.	Hind toe without claw.
110051*	Knudsen	Ad ..	Kauai, Hawaiian Islands.	....	58	41	11	18	13	7
110052	....do ...	Ad ..	......do	....	60	42	12	20	14	8

* Type.

There is in the U. S. National Museum a specimen (No. 14686) obtained by Mr. J. K. Townsend in the "Sandwich Islands" [probably Oahu] which bears a general resemblance to *H. parva*. It seems to be considerably smaller, but as it is in extremely abraded plumage and the exact locality is unknown nothing definite can be made out of it.

Himatione sanguinea (GMEL.).

Apapane.

1788.—*Certhia sanguinea* GMELIN, S. N., I, p. 479.—*Himatione sanguinea* CABANIS, Mus. Hein., I, p. 99 (1850).—PELZELN, Journ. f. Orn., 1872, p. 27.—SHARPE, Cat. B, Brit. Mus., X, p. 8 (1885).—*Drepanis sanguinea* CASSIN, U. S. Expl. Exp., Mam. Orn., 2 ed., p. 439 (1858).—DOLE, Proc. Boston Soc. N. H., XII, 1869, p. 297, Extr. p. 4.—*Id.*, Hawaiian Almanac, 1879, p. 44.

1826.—*Nectarinia byronensis* BLOXHAM, Voy. "Blonde," App., p. 249.

Five specimens from the "U. S. Exploring Expedition" and one obtained by Mr. Townsend are before me for comparison with the three ones sent by Mr. Knudsen. The former, except one, are only labeled "Sandwich Islands," but they are probably not from Kauai. In color I can discover no difference, and from the table below it will be seen that there is none as regards dimensions.

The three Kauai birds are apparently fully adult, they being rich crimson both above and below. One specimen (No. 110056) has the outer edges of the secondaries crimson, while the two others have them yellowish buff, which color also edges the two outer great coverts. This may indicate somewhat younger birds, although I am more inclined to think that they are females, and that the bird described by Mr. Sharpe (Cat. B, Brit. Mus., X, p. 9) as an *adult* female is really only in transition plumage.

The ashy under wing-coverts seem to be a character which may separate the present species in most of its plumages from allied species.

Mr. Knudsen expresses his belief that the Apapane feeds exclusively on flower honey, but Dr. Finsch (Ibis, 1880, p. 80) states that he only found small seeds in their stomachs.

Measurcments.

U. S. Nat. Mus. No.	Collector.	Sex and age.	Locality.	Wing.	Tail-feathers.	Chord of exposed culmen.	Tarsus.	Middle toe with claw.	Hind toe without claw.
110056	Knudsen	ad	Kauai, Hawaiian Islands	71	50	16	22	16	9
110057	do	......	do	70	49	15	23	16	9
110058	do	......	do	74	53	16	23	18	10
14688	Peale	ad	Hawaii	72	50	....	......	....	....
14698	do	ad	"Sandwich Islands"	73	51	17	......	....	....
32161	do	ad	do	74	....	....	23	....	9
32159	do	ad	do	74	56	17	......	....	9
32157	do	ad	do	72	47	15	23	17	10
14692	Townsend	ad	do	71	48	16	......	....	....

? Himatione chloris CAB.

Anoanii.

1850.—*Himatione chloris* CABANIS, Mus. Hein., I, p. 99.

1853.—*Himatione flava* REICHENBACH, Handb. Spec. Ornith., II Abth., p. 225 (*nec* BLOXHAM).—PELZELN, Journ. f. Ornith., 1872, p. 28.

It is with considerable doubt that I apply both the specific and generic term of the above heading for three specimens which are in Mr. Knudsen's collection from Kauai.

H. chloris is usually referred to *H. virens* of Gmelin (Latham's "Olive-green Creeper"), but I think quite erroneously. Latham's description indicates a bird of essentially the same size and proportions as *H. sanguinea*, with a bill rather straighter than otherwise. The bill of *H. sanguinea* he describes as "not very hooked, though bent" (Syn. B., I, pt. ii, p. 739); that of *H. virens*,* on the other hand, as "very little curved" (*tom. cit.* p. 740). Now, Cabanis says that his *H. chloris* has the bill "perceptibly more curved" than *H. sanguinea* (*l. c.*), and v. Pelzeln describes birds from the same collection as Cabanis's as being distinguishable by their more strongly curved bills (*tom. cit.*, p. 29). Knudsen's birds have the bill not only "perceptibly more curved" than that of *H. sanguinea*, but quite as much so as that of *Vestiaria coccinea;* the concavity of the gonys is even much more arched than the convexity of the culmen of *H. sanguinea!* The bills of these birds are also much stouter at base than are those of *H. sanguinea*. As will be seen from the table of dimensions below, the bills of the Kauai birds are longer than those of *H. sanguinea* (*cf.* table on p. 96), while Cabanis says that the latter has a longer bill than his *H. chloris*. This statement has made me somewhat doubtful in regard to my birds being identical with this species, but then, on the other hand, the measurements given by v. Pelzeln do not agree with the statement of Dr. Cabanis, which perhaps may be due to an inadvertency. As far as coloration is concerned my birds seem to agree fairly with Cabanis's description. They may be said to be similar to *H. parva*, though somewhat duller and more olive, and the under tail-coverts are whitish and not yellow. It should be remarked that the types of *H. chloris* came from Oahu, and that an actual comparison of birds from this island with Kauai specimens are necessary in order to establish the identity beyond doubt.

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* *H. virens* I take to be the form peculiar to Hawaii, *N. flava* of Bloxham being a strict synonym. It seems to have the same shape and dimensions as *H. coccinea*, but the colors of *H. chloris*.

As to these birds being members of the genus *Himatione* I have considerable doubt. Not only is the bill quite different, but the three specimens before me have the tails proportionally much shorter than in *H. sanguinea* and *parva*.

Mr. Knudsen states that both sexes are represented in the collection. No. 110055 is considerably duller and paler than the two other specimens, and is probably a female. All are adults, without trace of whitish tips to the wing-coverts.

In his letter Mr. Knudsen furthermore informs us that the Anoanii feeds on bugs as well as on flower-honey.

Measurements.

U. S. Nat. Mus. No.	Collector.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Chord of exposed culmen.	Tarsus.	Middle toe with claw.	Hind toe without claw.
110053	Knudsen.	ad ..	Kauai, Hawaiian Islands.	....	67	40	20	22	16	9.5
110054	....do	ad ..	....do	....	67	39	19	22	17	10
110055	....do	ad ..	....do	....	67	40	18	22	16	10

Vestiaria coccinea (Merr.).

Olokele.

1786.—*Mellisuga coccinea* Merrem, Av. Rar. Descr. et Icon. (p. 14, pl. iv)*.—*Vestiaria c.* Reichenbach, Handb. Spec. Ornith., II Abth., p. 254, pl. dlxii, figs. 3830–32 (1852).—*Drepanis c.* Cabanis, Mus. Hein., I, p. 99 (1850).—Cassin U. S. Expl. Exp. Mam. Orn., p. 177 (1858).—Dole, Proc. Boston Soc. N. H. XII, 1869, p. 297, Extr. p. 4.—*Id.*, Hawaiian Almanac, 1879, p. 44.—Pelzeln, Journ. f. Orn., 1872, p. 26.—Finsch, Ibis, 1880, p. 79.

1790.—*Certhia vestiaria* Latham, Ind. Orn., I, p. 282.

1879.—*Drepanis rosea* Dole, Hawaiian Almanac, 1879, p. 44.—*Id.*, Ibis, 1880, p. 241.—*Loxops rosea* Sharpe, Cat. B. Brit. Mus., X, p. 50 (1885).

A careful comparison of Knudsen's four specimens with three birds in the museum, probably not from Kauai, shows no tangible difference in color or dimensions.

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* I find also cited "*Certhia coccinea* Forster, Gött. Magaz., I, [or IV] 1780, p. 346," but I am without means of verifying the quotation.

No. 110048 is an immature bird in transition plumage corresponding closely to the bird described by Dole as *D. rosea*, and I have no doubt that the latter belongs to *V. coccinea* as a synonym. It is difficult to see how Mr. Sharpe could refer it to the genus *Loxops*, reprinting as he does Dole's description, in which the bird is compared with "*Drepanis coccinea*," and the bill stated to be "1 inch, curved."

The immature bird seems to have had the bill and feet somewhat brownish or dusky, while in the adult these parts are evidently beautiful red.

Measurements.

U. S. Nat. Mus. No.	Collector.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Chord of exposed culmen.	Tarsus.	Middle toe with claw.	Hind toe without claw.
110045	Knudsen	ad ..	Kauai, Hawaiian Islands.	....	74	51	25	23	18	9.5
110046	....do	ad ..	....do	....	81	57	28	25	......	10
110047	....do	ad ..	....do	....	73	49	24	22	17	9
110048	....do	imm.	....do	....	76	49	24	23	......	9
14697	Peale	ad ..	"Sandwich Islands."	....	73	48	....	......	......	....
14699	....do	ad ..	....do	....	82	58	....	......	......	....
85559	....	ad ..	....do	....	76	50	....	23	......	....

OREOMYZA, gen. nov.

(ὄρειος=montanus; μυζέω = sugo.)

This genus may be characterized as one of the nine-primaried *Dicæidæ* (as defined by R. B. Sharpe, Cat. B. Brit. Mus., X, p. 2) distinguished (1) by having the nasal fossæ partly hidden by antrorse feathers; (2) by the absence of rictal bristles; (3) by the elongated, but otherwise *Loxiops*-like bill; (4) by the shortness of the first (ninth) primary which is but slightly longer than the secondaries; (5) by the shortness and stoutness of the feet, the tarsus being not more than twice the hind toe without claw.

Type.—Oreomyza bairdi STEJNEGER.

In some respects the present form seems to agree with *Pinaroloxias* SHARPE, especially in the profile of the bill. I can find no other structural character of consequence assigned to the latter species than "the culmen flattened in front of the nostrils" (Sharpe, Cat. B. Brit. Mus., X, p. 3), a peculiarity not at all shared in by *Oreomyza*.

The most noteworthy peculiarity of the present genus is expressed by the wing-formula which seems to be unique among the Hawaiian members of the *Dicæidæ*, for all the other forms which I have been able to examine,* viz, *Hemignathus*, *Vestiaria*, *Himatione*, *Heterorhynchus*

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* According to v. Pelzeln, Jour. f. Orn., 1872, p. 28, *Himatione maculata* CAB., has a rather short first (ninth) primary, but the 3d one is longest, and not the 4th as in my birds. Cabanis's species may belong to *Oreomyza* as second species, although its proportions generally agree with those of *H. sanguinea*, judging from v. Pelzeln's measurements (*l. c.*).

(*lucidus*), *Loxops* (*coccinea*), and *Psittirostra*, have the first (ninth) primary never shorter than the fifth, while in *Oreomyza* it is shorter than the seventh, and only slightly longer than the secondaries which in the other genera fall short of the tips of the exterior primary by more than the length of the hind toe without claw. I have examined carefully both specimens of *Oreomyza bairdi* and find they agree completely; I also find that the quills are fully grown, so that there is no chance of their being undeveloped.

Another important feature is the partial covering of the nasal fossæ by overhanging feathers, and the absence of real bristles. In the specimens of *Loxops* and *Psittirostra* before me, the nasal fossæ are likewise covered by antrorse feathers (in the cuts of the bills of these genera in the tenth volume of Cat. B. Brit. Mus., pp. 49, 51, the nasal fossæ are represented as entirely bare), and the bristles, if present, but slightly developed, while in the other genera strong and black bristles are seen guarding the base of the upper mandible.

The hind toe is better developed, and the tarsus comparatively shorter than in the allied genera. Taken in connection with the rounded shape of the wing and the comparative shortness of the tail, it seems likely that the habits of the present form are more terrestrial than those of the other Hawaiian *Dicæidæ*.

Oreomyza bairdi, sp. n.

Akakane.

Diagnosis.—Above clear olive-gray tinged with pale olive-green on rump and margins of tail-feathers and secondaries; underneath pale olive-buff, nearly white on chin, throat, and under wing-coverts, tinged with pale primrose-yellow on the fore neck, and suffused with olive-gray on the flanks; lores whitish; ear-coverts like the upper parts.

Dimensions (type specimen).—Wing, 65^{mm}; tail-feathers, 40^{mm}; exposed culmen, 12^{mm}; tarsus, 20^{mm}; middle toe with claw, 16^{mm}; hind toe without claw, 10^{mm}.

Habitat.—Kauai, Hawaiian Islands.

Type.—U. S. Nat. Mus., No. 110049. V. Knudsen coll.

This species is so different from all the other Hawaiian *Dicæidæ* as to require no further comparison with either of them, as the generic characters given above will suffice to distinguish it at once.

The two birds which Mr. Knudsen collected in the mountains of Kauai, and which he states to be male and female, are evidently adults, as no trace of immaturity can be discovered. It seems that most of the Hawaiian *Dicæidæ*, and possibly all, have light tips to the wing-coverts in the young plumage, but the specimens before me have these coverts quite uniform.

I have nothing to add to the above diagnosis by way of description, except that the bill is light horny-brown above and pale underneath, and that the feet are horny brown. Both specimens are quite alike, except that No. 110050 has the culmen slightly more straight and the upper parts slightly more brownish.

I dedicate this new species to Prof. S. F. Baird.

Measurements.

U. S. Nat. Mus. No.	Collector.	Age and sex.	Locality.	Date.	Wing.	Tail-feathers.	Chord of exposed culmen.	Tarsus.	Middle toe with claw.	Hind toe without claw.
110049*	Knudsen	ad..	Kauai, Hawaiian Islands.	....	65	40	12	20	16	10
110050	....do ...	ad..	....do	....	64	39	13	19	16	10

* Type.

In addition it may not be out of place to give a brief

PROVISIONAL KEY TO THE GENERA OF THE HAWAIIAN *DICÆIDÆ*.

a^1 Upper mandible more than one-third longer than the under mandible. *Heterorhynchus.*

a^2 Upper mandible slightly, if any, longer than the under mandible, the difference being about one-tenth the chord of the culmen, or less.

- *b*^{1} Chord of exposed culmen about equal to the tail-feathers. *Hemignathus. Drepanis.*
- *b*^{2} Chord of exposed culmen about half the length of the tail-feathers, or less.
  - *c*^{1} Nasal fossæ entirely bare.
    - *d*^{1} Chord of exposed culmen less than the length of the tarsus. *Himatione.*
    - *d*^{2} Chord of exposed culmen not less than the length of the tarsus. *Vestiaria.*
  - *c*^{1} Nasal fossæ more or less covered by anthrorse plumes.
    - *d*^{1} First primary shorter than sixth. *Oreomyza.*
    - *d*^{2} First primary longer than sixth. *Loxops. Psittirostra. Loxioides.*

Moho braccata CASSIN.

Oo.

1848.—?*Certhia pacifica* PEALE, U. S. Expl. Exp., 1 ed. (p. 149), (*nec* GMEL.).

1853.—*Mohoa fasciculata* ♀ REICHENBACH, Handb. Spec. Orn., II Abth., p. 33, pl. dcxiv, fig. 4099 (*nec* LATH.).

1856.—*Mohoa braccata* CASSIN, Proc. Philada. Acad., VII, p. 440.—*Id.*, U. S. Expl. Exp. Mam. Orn., p. 272 (1858).—(*Moho*) DOLE, Proc. Bost. Soc., XII, 1869, p. 296, Extr. p. 3.—*Id.*, Hawaiian Almanac, 1879, p. 46.—SCLATER, Ibis, 1871, pp. 358–360.—*Id.*, *ibid.*, 1879, p. 92.—PELZELN, Journ. f. Orn., 1872, p. 26.—*Id.*, Ibis, 1873, p. 21.—WALLACE, Isl. Life, p. 297 (1881.)

Dr. H. Gadow (Cat. B. Brit. Mus., IX, p. 284, 1884), notwithstanding Dr. Sclater's statement that this bird is an "undoubtedly good species" (Ibis, 1871, p. 358), unites it with *M. nobilis*, without a single word of explanation. Reichenbach believed the bird to be the female of the latter, but there is no clue as to whether Dr. Gadow shared this opinion.

Cassin and Gould inform us that nearly the only sexual difference in *M. nobilis* and *M. apicalis*, respectively, consists in the much inferior size of the female, and v. Pelzeln's measurements and remarks (Journ. f. Orn., 1872, pp. 25, 26) seem to corroborate their opinion. As will be seen from the table below, I have before me two large, long-tailed *M.*

nobilis and two smaller ones with shorter tail-feathers, there being little doubt that these represent the males and females of this species.

Nor is there the remotest probability that *M. braccata* is the young of *M. nobilis*, for not only are there differences in structure and in the texture of the feathers, but the color differences are such as to preclude this possibility. The two birds from Kauai show no trace of immaturity.

The three species of *Moho* may be very easily distinguished by the following "key:"

a^1 Tail-feathers uniform blackish, without any trace of white............*M. braccata.*
a^2 Tail-feathers blackish, four or more tipped with white.
  b^1 Only two outer tail-feathers on each side tipped with white ....*M. nobilis.*
  b^2 All the tail-feathers, except the middle pair, tipped with white.....*M. apicalis.*

In order to emphasize the differences between *M. braccata* and *M. nobilis*, I shall tabulate them as follows:

M. nobilis.	*M. braccata.*
(1) Bill more curved.	Bill straighter.
(2) Feathers on top of head more rounded and softer.	Feathers on top of head more lanceolate and rigid.
(3) First primary about one-third the length of the wing.	First primary considerably more than one-third the wing.
(4) Lower back and rump, including upper tail-coverts, black.	Lower back and rump, including upper tail-coverts, tawny gray inclining to raw umber.
(5) Feathers of chin, throat, and fore-neck uniform glossy black.	Feathers of chin, throat, and fore neck black, with a transverse subapical bar of white.
(6) Abdomen blackish.	Abdomen russet.
(7) Under tail-coverts bright yellow.	Under tail-coverts russet, slightly paler than the abdomen.
(8) Feathers of tibiæ uniform black.	Feathers of lower part of tibiæ light chrome yellow.
(9). Small upper wing-coverts all glossy black.	Small upper wing-coverts glossy black, except those covering the bastard-wing, the primary coverts, and the bend of the wing, which are pure white.
(10) Quills blackish without light inner margins.	Quills internally edged with whitish for the basal half.
(11) Axillary tufts very long and bright yellow.	Axillary tufts less developed, and of a pale, buffy gray.
(12) Middle pair of tail-feathers greatly lengthened beyond the rest; two outer pairs broadly tipped with white.	Middle pair of tail-feathers much less elongated beyond the rest; all the rectrices uniform blackish without white tips.
(13) Size larger.	Size smaller.

The coloration of tibiæ, tail, and bend of wing, alone shows conclusively that *M. braccata* is a good species.

If to the characters given in the above comparison we add that *M. braccata* has the upper parts of the head glossy black, the back dark gray washed with tawny, and the interscapularies with light shaft-streaks and that the breast is similarly though deeper colored, we have a tolerably exhaustive description of this species.

Mr. Knudsen writes, that the Oo is a fine songster which in the districts, where bananas grow wild, feeds on the fruit, hollowing it out before it is ripe.

Measurements.

MOHO BRACCATA.

U. S. Nat. Mus. No.	Collector.	Sex and age.	Locality.	Date.	Wing.	Tail feathers.	Middle tail-feather beyond the rest.	Exposed culmen.	Tarsus.	Middle toe with claw.
110059	Knudsen	ad ..	Kauai, Hawaiian Islands.	....	90	82	16	25	32	20
110060	...do	ad ..	....do	....	93	77	16	26	32	22

MOHO NOBILIS.

U. S. Nat. Mus. No.	Collector.	Sex and age.	Locality.	Date.	Wing.	Tail feathers.	Middle tail-feather beyond the rest.	Exposed culmen.	Tarsus.	Middle toe with claw.
14644	Peale ...	ad ..	Hawaii, Hawaiian Islands.	....	119	168	48	....	37	......
14645	...do	ad ..	"Sandwich Islands."	....	122	200	61	29	39	26
32142	...do	ad ..	....do	....	100	111	28	....	35	......
32145	...do	ad ..	....do	....	105	132	33	24	33	22

SMITHSONIAN INSTITUTION,
Washington, D. C., January 13, 1887.